

What is claimed is:

1. A diaphragm device of a lens for a CCTV camera, comprising:

a lens barrel;

5 a diaphragm;

a base plate which supports said diaphragm;

a diaphragm driver for driving said diaphragm to adjust a size of an aperture formed by said diaphragm;

an optical filter; and

10 a filter driver for moving said optical filter into and out of an optical path of said lens;

wherein each of said diaphragm and said optical filter lies on a corresponding surface of said base plate;

and

15 wherein said diaphragm, said base plate, said diaphragm driver, said optical filter, and said filter driver are provided in said lens barrel.

2. The diaphragm device according to claim 1, further comprising a filter supporting plate having two 20 apertures, said optical filter being fixed to said filter supporting plate so as to cover at least one of said two apertures;

wherein said diaphragm comprises a pair of blades which overlap each other;

25 wherein said pair of blades lie on a first surface

of said base plate

wherein said filter supporting plate lies on a second surface of said base plate; and

wherein said filter driver moves said filter 5 supporting plate so that said two apertures are selectively positioned in said optical path.

3. The diaphragm device according to claim 1, wherein said filter driver comprises a lock mechanism which locks said optical filter at an advanced position 10 and a retracted position when said filter driver moves said optical filter into and out of said optical path, respectively.

4. The diaphragm device according to claim 2, wherein said filter driver comprises a latch mechanism 15 which positions said filter supporting plate at an advanced position and a retracted position when said filter driver moves said optical filter into and out of said optical path, respectively.

5. The diaphragm device according to claim 1, 20 wherein said optical filter comprises an infrared absorbing filter which absorbs light in an infrared region.

6. The diaphragm device according to claim 2, further comprising at least one second optical filter 25 which is fixed to at least one of said pair of blades so

as to cover said aperture formed by said pair of blades of said diaphragm.

7. The diaphragm device according to claim 6, wherein each of said at least one second optical filter 5 comprises an ND filter.

8. The diaphragm device according to claim 7, wherein said ND filter comprises spectral transmittance characteristics wherein a transmittance of said ND filter for light in an infrared region is one of substantially 10 identical to and less than a transmittance of said ND filter for visible light.

9. The diaphragm device according to claim 7, wherein said ND filter comprises spectral transmittance characteristics so as to filter out light in an infrared 15 region.

10. The diaphragm device according to claim 5, wherein said infrared region ranges from approximately 700 to 1000 nanometers.

11. The diaphragm device according to claim 8, 20 wherein said infrared region ranges from approximately 700 to 1000 nanometers.

12. The diaphragm device according to claim 9, wherein said the infrared region ranges from approximately 700 to 1000 nanometers.

25 13. The diaphragm device according to claim 7,

wherein a surface of said ND filter has a reflectivity which is one of equal to and less than approximately two percent.

14. The diaphragm device according to claim 7,
5 wherein said ND filter is made of a resin base on which multi-metal layers are formed by evaporating a metal onto said resin base.

15. A diaphragm unit provided in a lens barrel of a CCTV surveillance camera, comprising:

10 a base plate having a plane portion on which an image-forming aperture is formed;

a filter supporting plate which is held by one of front and rear surfaces of said base plate to be movably guided on and along said one of said front and rear surfaces,

15 said filter supporting plate having two apertures which are selectively positioned to align with said image-forming aperture;

an infrared absorbing filter fixed to said filter supporting plate so as to cover one of said two apertures;

20 a pair of diaphragm blades which slidably overlap each other and are held by the other of said front and rear surfaces of said base plate, wherein a variable-sized aperture is formed by said pair of diaphragm blades, the size of said variable-size aperture changing in accordance
25 with relative movement between said pair of diaphragm

blades;

at least one ND filter which is fixed to at least one of said pair of diaphragm blades so as to cover said image-taking aperture; and

5 first and second actuators fixed to said base plate on opposite sides of said plane portion of said base plate, respectively;

wherein said first actuator moves said pair of diaphragm blades in opposite directions relative to each 10 other to adjust said size of said variable-sized aperture; and

wherein said second actuator moves said filter supporting plate so that said two apertures are selectively positioned to align with said image-forming 15 aperture.

16. The diaphragm unit according to claim 15, wherein said ND filter comprises spectral transmittance characteristics wherein a transmittance of said ND filter for light in an infrared region is one of substantially 20 identical to and less than a transmittance of said ND filter for visible light.

17. The diaphragm unit according to claim 15, wherein said ND filter comprises spectral transmittance characteristics so as to filter out light in an infrared 25 region.

18. The diaphragm unit according to claim 15, further comprising a plane-parallel plate which is fixed to said filter supporting plate so as to cover the other of said two apertures,

5 wherein said second actuator moves said filter supporting plate so that said infrared absorbing filter is positioned in front of a color image pick-up device of said CCTV surveillance camera during an image-forming operation in the daytime, and so that said plane-parallel
10 plate is positioned in front of said color-image pick-up device of said CCTV surveillance camera during an image-forming operation at nighttime.

19. The diaphragm unit according to claim 15, further comprising a latch mechanism which positions said
15 filter supporting plate in each of first and second positions;

 wherein one of said two apertures is positioned to align with said image-forming aperture when said filter supporting plate is positioned in said first position, and
20 wherein the other of said two apertures is positioned to align with said image-forming aperture when said filter supporting plate is positioned in said second position.

20. The diaphragm device according to claim 16, wherein said infrared region ranges from approximately 700
25 to 1000 nanometers.

21. The diaphragm unit according to claim 15,
wherein a surface of said ND filter has a reflectivity
which is one of equal to and less than approximately two
percent.

5 22. The diaphragm unit according to claim 15,
wherein said ND filter is made of a resin base on which
multi-metal layers are formed by evaporating a metal onto
said resin base.

10 23. The diaphragm device according to claim 1,
wherein said lens barrel is integrally fixed to a camera
body of said CCTV surveillance camera.

15 24. The diaphragm device according to claim 2,
wherein said base plate comprises a plurality of
supporting protrusions which are formed on each of front
an rear surface thereof to support and guide each of said
diaphragm and said filter supporting plate in a
longitudinal direction of said base plate.

20 25. The diaphragm device according to claim 1,
wherein said diaphragm driver comprises a galvanometer
type actuator.

26. The diaphragm device according to claim 1,
wherein said filter driver comprises a galvanometer type
actuator.

27. A diaphragm device, comprising:
25 a plurality of diaphragm blades which slidably

overlap each other to form a variable-sized aperture;

a filter supporting plate having an infrared absorbing filter;

5 a base plate which supports said plurality of diaphragm blades and said filter supporting plate on opposite surfaces of said base plate, respectively;

a first driver for moving said plurality of diaphragm blades on said base plate to adjust a size of said variable-sized aperture; and

10 a second driver for moving said filter supporting plate on said base plate so that said infrared absorbing filter is selectively inserted into and retracted from an optical path in said lens barrel;

wherein said first driver and said second driver are 15 positioned in opposite sides of said base plate.